



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/840,481

04/23/2001

Armando J. Vigil

"PRO SE"

5735

7590

03/22/2005

Christopher F. Regan

ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A.

1401 Citrus Center 255 South Orange Avenue

P.O. Box 3791

Orlando,, FL 32802-3791

EXAMINER

TRAN, TRANG U

ART UNIT

PAPER NUMBER

2614

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/840,481

Applicant(s)

VIGIL ET AL.

Examiner

Trang U. Tran

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25,28-32,35,38-43,46 and 47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25,28-32,35,38-43,46 and 47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 02, 2005 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 25, 28-32, 35, 38-43 and 46-47 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 25, 28-32, 35, 38-42 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabb et al. (US Patent No. 6,437,832 B1) in view of Lyons et al (US Patent No. 6,356,212 B1).

In considering claim 25, Grabb et al et al discloses all the claimed subject matter, note 1) the claimed receiving a transmitted DTV signal is met by the antenna 106 (Fig. 1, col. 4, lines 55-57), 2) the claimed detecting correlation peaks in the received DTV

Art Unit: 2614

signal based upon the multiplexed reference data is met by the cross-correlator 108 which detects a cross-correlation spike from the cross-correlator every 4095 clock times for the m-sequence generator (Fig. 1, col. 4, line 55 to col. 5, line 65), and 3) the claimed using the detected correlation peaks to mitigate multipath in the received DTV signal is met by the phase adjuster 110 which adjusts the phase of the locally generated overlay signal by retarding or advancing the clocking of the locally generated overlay signal maximize the largest peak of the signal from cross-correlator 108 (Fig. 1, col. 4, line 55 to col. 5, line 65).

However, Grabb et al explicitly do not disclose the claimed generating a training sequence that is ATSC DTV compliant; multiplexing the training sequence with DTV data to generate a multiplexed DTV data stream with the training sequence embedded therein; and modulating the multiplexed DTV data stream for transmission.

Lyons et al teaches that, as is well known, the ATSC broadcast system includes three general subsystems: source coding and compression, service multiplex and transport, and transmission. Basically, the first subsystem, source coding and compression, deals with bit rate reduction for the video, audio and ancillary digital data streams. The second subsystem, service multiplex and transport, deals with dividing each digital stream into "packets" and multiplexing, the video stream packets, audio stream packets and ancillary digital data stream packets into a single transport stream. The ATSC standard employs the Motion Pictures Experts Group MPEG-2 transport stream syntax for packetization and multiplex of the video, audio and ancillary digital

Art Unit: 2614

data. Finally, the third subsystem, transmission, deals with channel coding and modulation (col. 1, lines 34-48).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the coder and the modulation as taught by Lyons et al into Grabb et al's system in order to provide a reliable, efficient and affordable digital transmission systems (col. 1, lines 19-23 of Lyons et al).

In considering claim 28, the claimed wherein the training sequence is based upon a priori knowledge of the DTV data is met by the m-sequence overlay signal generator (Fig. 3, col. 4, lines 22-45 and col. 5, line 66 to col. 6, line 54 of Grabb et al).

In considering claim 29, the claimed wherein the a priori knowledge includes modulation characteristics of the DTV data is met by the m-sequence overlay signal generator (Fig. 3, col. 4, lines 22-45 and col. 5, line 66 to col. 7, line 12 of Grabb et al).

In considering claim 30, the claimed further comprising estimating the modulation characteristics of the DTV data is met by cross-correlator which generates an estimate of the impulse response of the DTV channel by presenting the multipath components and strengths (Fig. 6, col. 5, line 21 to col. 7, line 12 of Grabb et al).

In considering claim 31, Grabb et al discloses all the claimed subject matter, note 1) the claimed estimating modulation characteristics of DTV data to be transmitted is met by cross-correlator which generates an estimate of the impulse response of the DTV channel by presenting the multipath components and strengths (Fig. 6, col. 5, line 21 to col. 7, line 12), and 2) the claimed determining reference data based upon the estimated modulation characteristics of the DTV data is met by the m-sequence overlay

signal generator (Fig. 3, col. 4, lines 22-45 and col. 5, line 66 to col. 7, line 12).

However, Grabb et al explicitly do not disclose the claimed generating a training sequence that is ATSC DTV compliant and multiplexing the training sequence with the DTV data to generate a multiplexed DTV data stream and modulating the multiplexed DTV data stream for transmission.

Lyons et al teaches that, as is well known, the ATSC broadcast system includes three general subsystems: source coding and compression, service multiplex and transport, and transmission. Basically, the first subsystem, source coding and compression, deals with bit rate reduction for the video, audio and ancillary digital data streams. The second subsystem, service multiplex and transport, deals with dividing each digital stream into "packets" and multiplexing, the video stream packets, audio stream packets and ancillary digital data stream packets into a single transport stream. The ATSC standard employs the Motion Pictures Experts Group MPEG-2 transport stream syntax for packetization and multiplex of the video, audio and ancillary digital data. Finally, the third subsystem, transmission, deals with channel coding and modulation (col. 1, lines 34-48).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the coder and the modulation as taught by Lyons et al into Grabb et al's system in order to provide a reliable, efficient and affordable digital transmission systems (col. 1, lines 19-23 of Lyons et al).

Claim 32 is rejected for the same reason as discussed in claim 25.

Claim 35 is rejected for the same reason as discussed in claim 25.

Claims 38-40 are rejected for the same reason as discussed in claims 28-30, respectively.

In considering claim 41, the claimed wherein said receiving system comprises a digital television is met by the DTV (Fig. 1 of Grabb et al).

Claim 42 is rejected for the same reason as discussed in claim 25.

Claims 46-47 are rejected for the same reason as discussed in claims 28-29, respectively.

5. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grabb et al. (US Patent No. 6,437,832 B1) in view of Lyons et al (US Patent No. 6,356,212 B1), and further in view of Frey et al. (US Patent No. 6,304,299 B1).

In considering claim 43, the combination of Grabb et al and Lyons et al disclose all the limitations of the instant invention as discussed in claims 25 and 42 above, except for providing the claimed further comprising a demodulator connected to said correlator for demodulating the receiving DTV signal. Frey et al teach that in Fig. 1, the transmitted signal is received by receive antenna 106 which, in turn, supplies the received signal to a receiver 107, antenna 106 and receiver 107 receive and demodulate the received signal to provide demodulated signal 18 (Fig. 1, col. 4, lines 10-24). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the demodulator as taught by Frey et al into the combination of Grabb et al and Lyons et al's system in order to convert the RF signal to the base band signal of the video signal to be transmitted.

Art Unit: 2614

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (703) 305-0090. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT  
March 20, 2005

  
TRANG TRAN  
PATENT EXAMINER